## REMARKS

The following number sections of these remarks are provided in response to similarly number sections of the office action.

1.  The drawings are objected to as failing to show an element recited in claim 1.  In response to this rejection, claim 1 is amended.

2.  Claim 1 is amended in response to the Examiner's objection.

3.  Claim 1 is amended in response to the rejection of claim 1-5 under 35 U.S.C. 112, second paragraph.  Claims 2 and 9 are also amended to render them more definite and certain.

4.  Claims 1 and 2 are rejected under 35 U.S.C. 102(2) as being anticipated by U.S. Patent 6,735,203 (HEIMAN).  The Examiner is respectfully requested to withdraw the rejection of claims 1 and 2 in view of the following remarks distinguishing claims 1 and 2 over HEIMAN.

   Claim 1 recites an apparatus for receiving, storing and forwarding cells.  The apparatus includes a cell memory having memory blocks for storing the cells wherein each memory block is identified by a unique BLOCK_ID.  The recited apparatus also includes memory control means for maintaining a queue of BLOCK_ID's.  Claim 1 recites that the memory control means adds the BLOCK_ID of a memory block to the queue when a cell is written to the memory block and removes the BLOCK_ID from the queue when a cell is read out of the memory block. It therefore follows that the function of the queue recited in claim 1 is to identify each memory block within the cell memory that currently contains a cell.

   The Examiner points to HEIMAN (FIG. 5) as showing a switch output port having a memory (RST1) including rows and columns of memory blocks (or "locations") where each memory block may store a cell. However, the Examiner incorrectly points to table T2 of HEIMAN's FIG. 5 as being similar to the queue recited in claim 1.  HEIMAN (col. 6, lines 13-15) teaches that table T2 stores a set of "order stamps" {$SN_0$, $SN_1$ ...} each of which "is the serial number of a cell", and that the serial number is a part of the cell (column 6, line 26). Each serial number $SN_x$ stored in HEIMAN's table T2 identifies a next cell of a

8

sequence of cells (a "connection") passing though the switch port that is to be forwarded from the switch port. If the serial number $SN_x$ of an incoming cell currently arriving at the switch port matches one of the serial numbers stored in table T2, the check unit immediately forwards that cell via the FIFO buffer OB and increments the serial number in Table T2 for that connection. Otherwise, the check unit stores the incoming cell in memory RST1 in a location at a memory row corresponding to the connection and at a column corresponding to the serial number and refrains from altering the serial number in table T2. (See col. 7, lines 17-35.) A read unit checks the memory to determine whether it contains a cell matching any serial number in table T2, and if so, forwards it from the memory and increments the serial number in table T2. (See col. 7, lines 43-65). Thus while the function of the queue recited in claim 1 is to identify each memory block within a cell memory that currently contains a cell, the function of HEIMAN's table T2 is to identify the next cell of each connection that is to be forwarded, and that next cell may or may not currently reside in the cell memory. Thus table T2 and the recited queue store different data and are used for different functions.

The applicant's claim 1 is therefore patentable over HEIMAN because HEIMAN fails to teach the recited memory control means for maintaining a BLOCK_ID queue of the type recited in claim 1.

Claim 2 depends on claim 1 and is patentable over HEIMAN for similar reasons.

5. Claims 3, 6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over HEIMAN in view of U.S. Patent 6,011,779 (WILLS). The Examiner is respectfully requested to withdraw the rejection of these claims in view of the following remarks distinguishing these claims over the combination of HEIMAN and WILLS.

Claim 3

Claim 3 (amended) depends on claims 1 and 2, and with respect to claim 3, the Examiner relies on HEIMAN as anticipating the underlying subject matter of claims 1 and 2 and relies on WILLS as teaching the additional limitations of claim 3. Since HEIMAN fails to teach or suggest the memory control means claims 1 and 2 for the reasons

9

indicated above, and since WILLS does not teach such memory control means, claim 3 is patentable over the combination of HEIMAN and WILLS.

Claims 6 and 7

Claims 6 and 7 recite a step (b) of generating of a sequence of BLOCK_ID's of memory blocks currently storing cells and a step (c) of adding each generated BLOCK_ID to a BLOCK_ID queue. Steps d and e recite operations carried out on the queue. As discussed above HEIMAN does not teach the recited memory control means that maintains the recited queue, and the Examiner does not cite WILLS as teaching such memory control means. Thus, claim 6 is patentable over the combination of WILLS and HEIMAN.

6.   Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of HEIMAN, WILLS and U.S. Patent 5,689,500 (CHIUSSI). The Examiner is respectfully requested to withdraw this rejection for the reason cited below.

Claim 4 depends on claims 1-3 and with respect to claim 4, the Examiner relies on the combination of HEIMAN and WILLS as anticipating the underlying subject matter of claims 1-3 and relies on CHIUSSI as teaching the additional limitations of claim 4.  Since the combination of HEIMAN and WILLS fails to teach or suggest the memory control means recited in claim for the reasons indicated above, and since CHIUSSI does not teach such memory control means, claim 4 is patentable over the combination of HEIMAN, WILLS and CHIUSSI.

7.   Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of HEIMAN and U.S. Patent 6324,165 (FAN).  The Examiner is respectfully requested to withdraw this rejection for the reason cited below.

Claims 9 and 10 recite a method that establishes a separate BLOCK_ID queue corresponding to each of a plurality of virtual output queues (VOQs).  Each of a plurality of cell flows is assigned to one of the VOQs.  A BLOCK_ID of a memory block is added to BLOCK_ID queue whenever a cell of a flow assigned to a corresponding VOQ is written into that memory block (step d, claim 9), and is removed from the BLOCK_ID queue whenever a cell of a flow assigned to the corresponding

10

VOQ is read out of the memory block (steps f and g, claim 9).  Thus, each BLOCK_ID queue contains BLOCK_ID's referencing all blocks in a cell memory that currently store cells of a flow assigned to a corresponding VOQ.  Each BLOCK_ID queue therefore acts as a record of the storage locations of cells of the corresponding flow.

The Examiner correctly cites HEINMAN as teaching that cells can be parts of different flows ("connections"), and that such cells can be temporarily  stored in blocks of memory RST1 (FIG. 5),  But the Examiner incorrectly cites HEIMAN's table T2 as being the recited BLOCK_ID queues.  As discussed above in connection with claim 1, table T2 stores the serial number of the next cell of each flow/connection that is to be forwarded, and that cell may or may not reside in memory RST1. Table T2 does not include a BLOCK_ID referencing a storage location of every cell currently stored in memory RST1.  A BLOCK_ID is not added to table T2 when a cell is written into the memory as recited in step d.  Since HEIMAN does not teach the recited BLOCK_ID queues, HEIMAN cannot be cited as disclosing any of steps c-h of claim 9 relating to operations carried out with respect to the BLOCK_ID queue.  The Examiner points to FAN only as disclosing VOQs but not as disclosing BLOCK_ID queues.  FAN's system does not include a cell memory for storing cells at storing locations indicated by block ID's. Claims 9 and it dependant claim 10 are patentable over the combination of HEIMAN and FAN because they fail to teach or suggest steps c-h of claim 9 relating to operations carried out with respect to a BLOCK_ID queue.

Claim 9 also recites as part of steps e, f, and g that back pressure data affects whether BLOCK_ID's are removed from the BLOCK_ID queues and claim 10 recites step k of generating that back pressure data based on the number of cells in first buffer means.  Neither HEIMAN nor FAN provides any teaching relative to back pressure.  WILLS, not cited against claims 9 and 10, does teach a back pressure system for regulating cell flows through a network switch, but does not a back pressure system can or should be used in connection with regulating flow of BLOCK_ID's in an out of a BLOCK_ID queue.
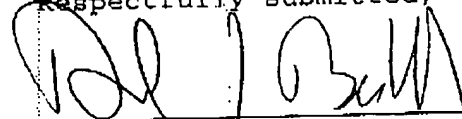
8.  Claims 8, 11-13 are objected to as being dependant on a rejected base claim.  The Examiner is respectfully requested to withdraw the

11

objection to these claims in view of the remarks above distinguishing the base claims over the cited prior art.

9.  Claim 5 is objected to as being dependant on rejected base claims. The Examiner is respectfully requested to withdraw the objection to claim 5 in view of the remarks above distinguishing the base claims over the cited prior art and in view of the amendment to base claim 1.

In view of the foregoing amendments and remarks, it is believed the application is in condition for allowance. Notice of allowance is therefore respectfully requested.

Respectfully submitted,
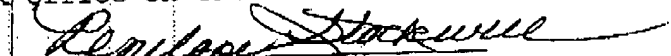
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12